

REMARKS

Reconsideration and allowance of this Application are respectfully requested. By this paper, claim 24 is cancelled without prejudice or disclaimer of the underlying subject matter, claims 1-3, 5-23, and 25-28 are amended, and claims 31-33 are added. Support for the subject recited in the newly added claims can be found, for example, on page 1, lines 22-28 and page 3, lines 23-29 of the disclosure. Claims 1-3, 5-28, and 31-34 are pending, where claims 3, 7, 15-24, and 26-28 are withdrawn.

In numbered paragraph 2 on page 2 of the Office Action, claims 1-15 are rejected under 35 U.S.C. §112, second paragraph, as indefinite. Applicants respectfully traverse this rejection. However, in an effort to expedite prosecution claims 10-15 are amended. Withdrawal of this rejection is respectfully requested.

In numbered paragraph 4 on page 3 of the Office Action, claims 1, 2, 5, 6, 9, and 25 are rejected under 35 U.S.C. §103(a) as unpatentable over *Plante* (U.S. Patent No. 4,655,563) in view of *Clemino* (U.S. Patent No. 4,670,338). Applicants respectfully traverse this rejection.

In the Office Action, the Examiner alleges that *Plante* discloses every element recited in Applicants' claims except for the flexible or compliant support elements feature. The Examiner relies on *Clemino* in an effort to remedy this deficiency. Independent claim 1 is amended to recite, in part, that a support structure comprises at least one passive flexible support element arranged to provide a supporting surface on which a self-deforming mirror is mounted. The *Plante* and *Clemino* patents considered either individually or in the combination suggested by the Examiner, fails to disclose at least this claimed feature.

The *Plante* patent discloses a deformable mirror in which a plurality of electrically-operative electrodistortive actuators may be used to selectively deform the mirror's reflecting surface. As shown in Figure 1, the deformable mirror is supported by three pairs of kinematic bi-pod mounts. Each mount 20 includes a pair of variable length actuators 22 and 24, which (actuators) are pinned at one end to the supports on which the deformable mirror is mounted. The angle and distance between each pair of actuators for each kinematic mount are chosen so that the reaction force generated by the kinematic mounts in supporting the mirror act through the neutral axis of the mirror. It appears that *Plante* is, therefore, directed to the use of active support mounts.

Clemino discloses a mirror substrate having two glass plates 10 and 12 which are glued to either side of an intermediate structure 14. The intermediate structure 14 has a central core 16, a first set 18 of blocks of glass foam (with each block being glued between the inside face of the plate glass 10 and one of the two faces of the central core 16), and a second set 20 of blocks of glass foam (with each block being glued between the inside face of the plate glass 12 and the other face of the central core 16) (column 4, lines 31-41; Figure 1). The *Clemino* patent appears to be directed to a support that provides a retaining force for a mirror. The retaining force enables an externally applied deforming force to deform the mirror. Thus, the first and second sets of glass foam provide forces used for deformation of the mirror such that they constitute active support mounts for the glass plates.

Applicants' claims recite that a support structure that is a passive structure with respect to the application of the forming forces. Applicants' claimed support structures are used with self-deforming mirrors, such that the support structure is not

involved in the deformation process. In the event, Applicants' support structures are removed, the self-deforming mirror of Applicants' claimed embodiment would still experience deformation. In contrast, the documents relied upon by the Examiner are directed to a deformable mirror that is deformed either by the application of deforming forces acting through the supports, or by use of a support structure to provide a retaining force to a mirror to enable deformation. In either case, the support structure is an integral and active component in the mirror deformation, and is not passive to the deformation process as presently claimed.

In summary, the *Plante* and *Clemino* patents, either individually or in the combination relied upon by the Examiner, fail to disclose or suggest every element recited in Applicants' claims. A *prima facie* case of obviousness has not been established. Withdrawal of the rejection is respectfully requested.

In numbered paragraph 5 on page 4 of the Office Action, the Examiner indicated that claim 8 is allowed. Applicants thank the Examiner for this acknowledgement, and respectfully submit that all pending claims are allowable.

New claims 31-34 depend either directly or indirectly from claim 1. By virtue of this dependency and the additional elements recited therein, Applicants' respectfully submit that these claims are allowable. Withdrawal of this rejection is respectfully requested.

Based on at least the foregoing amendments and remarks, Applicants submit that claims 1, 2, 5, 6, 9-15, 25, and 31-33 are allowable. Applicants further request the rejoinder and allowance of withdrawn claims 3, 7, 16-24, and 26-28. Applicants request a favorable examination and consideration of the instant application. In the event any issues remain, the Examiner is invited to contact Applicants' representative identified below.

Respectfully submitted,

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